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To: Commissioner Furchgott-Roth, FCC

Subject: ET Docket No. 98-42, Amendment of Part 18 RF Lighting Devices

From: Donald L Sweeney, President and Senior EMC Engineer, D.L.S. Electronic Systems, Inc.

I would like to voice several concerns in regard to the proposed Amendments. These all relate to experiences the personnel at D.L.S Electronic Systems, Inc. (D.L.S.), a testing laboratory, have seen over the years, since the last amendment when RF lighting was added to Part 18.

The original concern I have is not requiring radiated emissions testing for devices with frequencies of less than 1.705 MHz. It was thought that conducted testing would be all that would be required. By the time the harmonics reached 30 MHz the amplitude of the harmonics would be so low and not be a threat to licensed radio communications. We at D.L.S. have seen, by measurements and from our customers' experience, that this assumption is no longer valid. Today MOS Fets are often used for switching devices. These devices are designed to switch almost "instantaneously". In so doing their harmonic content goes far beyond 30 MHz, this from devices with fundamental frequencies of less than 100 kHz.

Some examples:

1. One customer's company's charter was to convert office buildings over to the "new" more efficient RF lighting. This company had to remove every RF ballast installed in one building because of interference being experienced by a tenant in the building. The company doing the installation then began coming to us to have future devices they were considering installing, tested for radiated emissions to avoid the earlier problem. The devices they had purchased were not required to be tested for radiated emissions because their fundamental operating frequency was less than 1.705 MHz. To avoid possible problems they chose to test all models of devices they would consider using in the future for radiated emissions. On several occasions we were able to recommend to them devices we had previously tested for RF lighting manufacturers' customers. These manufacturers often test the way D.L.S. recommends (See 2 below).
2. We at D.L.S. have recommended to all manufacturers of RF lighting that they do radiated testing even though it is not required by Part 18. We explain to them that they are not required to do this testing by the regulation, but they might want to consider doing so to meet the spirit of the regulation. Almost all of the manufacturers who have chosen to test have needed some changes to their product in order to meet the commercial or residential emission requirements we at D.L.S. had recommended they meet.

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Based on the background above I would now like to address a few of the items listed in the NPR.

GE Paragraph 7 under discussion asks for a relaxation of 22 dB in the frequency band of 2.2-2.8 MHz. This relaxation could (I assume) be used by all manufacturers, even those with products not requiring radiated emissions testing, which would create even more risk to the RF environment than at present. It is my belief that ALL RF lighting devices should be tested to the commercial and consumer limits even if their fundamental frequencies are below 1.705 MHz. Remember it is not the same as a computer that is switching 5 volts. RF lighting devices are starting out at 100's of volts higher. This means the fundamental switching levels are more than 30 dB higher than a computer's fundamental frequency.

Paragraph 8-11 discusses Microwave Lighting. Under these paragraphs an argument is given that microwave ovens are not subject to line conducted emission testing. There are several areas in the FCC rules and regulations that specifically exempt testing. Most of these exemptions allow for self-policing, not an excuse to exceed the limit. One example is a telephone central office. They self-police for their own protection. Digital electronics in vehicles are exempt because almost every vehicle has a radio receiver built in. If the digital product were RF noisy, no one would purchase the product. None of these exemptions involve products that simply can not meet the limit.

Care must be taken any time an exemption is considered. The potential for abuse always exists.

The last issue I would like to bring to your attention is the lack of responsiveness shown by manufacturers to comply with the present requirements. We see here in the Chicago area R.F. ballasts intended for commercial appliances sold in home improvement stores. This must stop! One was purchased by me recently at a home improvement store which did not contain "ANY" label!

In summary:

The conducted emissions should not be relaxed in any frequency range. To do so could increase the risk in other frequency bands because of the harmonics.

If microwave lighting is allowed, then the radiated emission requirements should be the same as any RF device.

Consideration should be given to require radiated emission testing on all RF lighting devices due to the higher levels their fundamentals exhibit and the fast switching devices used.

The commission must enforce its present rules.